



REPLACEMENT CLAIMS

Please replace claim 1 with the following:

- 53 7
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1. A device for monitoring the operation of a mechanical press, comprising:
- an at least one signal generator;
 - a signal conditioner operatively connected to said at least one signal generator, for calculating a value from said at least one generated signal;
 - a display operatively connected to said signal conditioner;
 - and
 - a control unit configured to selectably control said mechanical press in accordance with signals from said signal conditioner and/or said display.

Please replace claim 13 with the following:

- A2
13. The device of Claim 1, wherein said control unit further comprising a press machine controller for controlling press functions in response to said calculated values from said signal conditioner.

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Please replace claim 19 with the following:

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19. A device attachable to a mechanical press for measuring press conditions, said device comprising:
- an at least one accelerometer for measuring press conditions and creating a corresponding signal;

5 a signal processing means for processing said corresponding
signal, said signal processing means connected to said at least
one accelerometer to process said corresponding signal, said
signal processing means comprising:

an acceleration processing means for calculating a
press acceleration value;

a velocity processing means for calculating a press
velocity value;

a displacement processing means for calculating a press
displacement value;

15 a display means for displaying at least one of said
calculated values;

a switch permitting an operator to select one of said
calculated values for input to said display means; and

a control unit configured to selectably control said
20 mechanical press in accordance with signals from said signal
processing means and/or said display means.

Please replace claim 24 with the following:

24. The device of Claim 19, wherein said control unit
further comprising a press machine controller for controlling
press functions in response to said calculated values.

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Please replace claim 29 with the following:

29. A method of monitoring the long-term reliability of a mechanical press, comprising:

generating a unique press vibration severity/reliability zone chart;

5 monitoring the vibration severity of the press;

outputting the monitored vibration severity and the corresponding vibration severity/reliability zone; and

selectably controlling said mechanical press in accordance with the monitored vibration severity.

Please add new Claims 30-43 as follows:

Sub C1
30. A system in combination with a press machine and a press machine sensor assembly, said system comprising:

a press machine vibration monitoring apparatus, said vibration monitoring apparatus being operatively coupled to said
5 press machine sensor assembly, said vibration monitoring apparatus comprising:

a processor to process sensor signals generated by said sensor assembly; and

a controller being operatively coupled to said processor,
10 said controller being configured to selectably control said press machine.

31. The system as recited in Claim 30, wherein said controller being configured further to control said press machine

in accordance with processed sensor signals received from said processor.

32. The system as recited in Claim 30, wherein said processor being configured to generate relative to said press machine at least one of an acceleration measurement, a velocity measurement, and a displacement measurement.

Sub A to 30
33. The system as recited in Claim 30, wherein said sensor assembly includes at least one accelerometer.

cont.
34. The system as recited in Claim 30, further includes a display operatively coupled to said processor.

Sub B
35. The system as recited in Claim 30, wherein said vibration monitoring apparatus defining a built-in element of said press machine.

36. An apparatus in combination with a press machine and a press machine sensor assembly, said apparatus comprising:

a press machine vibration measurement device operatively coupled to said sensor assembly; and

5 a press machine controller operatively coupled to said press machine vibration measurement device.

37. The apparatus as recited in Claim 36, wherein said vibration measurement device further comprises a press acceleration determination unit, a press velocity determination unit, and/or a press displacement determination unit.

38. The apparatus as recited in Claim 36, further comprises:
a display operatively coupled to said press machine
vibration measurement device and/or said press machine
controller.

39. The apparatus as recited in Claim 36, wherein said
apparatus having a built-in configuration relative to said press
machine.

40. A method in combination with a press machine, said
method comprising the steps of:

sensing and measuring vibration activity in said press
machine; and

5 selectably controlling press machine operation in accordance
with the vibration activity measurement.

41. The method as recited in Claim 40, further comprises the
step of:

providing a built-in press machine vibration monitoring
device configured to perform the vibration activity measurement
5 and/or the press machine operation control.

42. The method as recited in Claim 40, further comprises the
step of:

displaying the vibration activity measurement and/or a
representation thereof.

43. The method as recited in Claim 40, further comprises the
step of:

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performing at least one of an alarm notification task, a vibration-related data storage task, a diagnostic task, and/or a 5 remote vibration-related data communication task, using the vibration activity measurement.
